

Oxime-linked polysaccharides and methods of preparing the same

Description of Technology: Polysaccharides comprising one or more oxime linkages are provided. Methods for their preparation include the polycondensation of saccharides bearing oxime-forming substituents. In some embodiments, polymerization is conducted in the presence of galactose oxidase. The resulting oxime-linked polysaccharides have desirable properties and are useful in numerous applications including paper manufacturing and drug delivery vehicles.

Patent Listing:

1. **US Patent No. 6846923**, Issued January 25, 2005, “Oxime-linked polysaccharides and methods of preparing the same”

<http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetacgi%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1=6,846,923.PN.&OS=PN/6,846,923&RS=PN/6,846,923>

Market Potential: Polysaccharides are highly prevalent in plants and animals, and frequently have important roles in biological structure. Both natural and synthetic polysaccharides may be useful in a wide variety of commercial applications including, for example, in paper products, foodstuffs, hydrogels, thickeners, water treatment applications, encapsulating media, drug delivery, hair treatment, wound healing, skin care, etc., to name a few. Most naturally occurring polysaccharides are built from sugar-based molecules that are connected through glycosidic linkages. Synthetic polysaccharides containing unnatural linkages may also be useful, thereby expanding the role of polysaccharides in both industrial applications and commercial products.

Polysaccharides are versatile and desirable polymers as indicated by their prevalence in numerous industrial applications and commercial embodiments. New polysaccharides may be needed to satisfy the ever-increasing demand for improved materials. The importance of polysaccharides in applications related to, for example, water treatment, paper products, hydrogel wound care, encapsulation, drug delivery, skin care, etc. clearly shows a need for polysaccharides that are stable, non-toxic, amenable to aqueous systems and biocompatible. The large-scale use of polysaccharides also creates a need for their efficient preparation from inexpensive starting materials in environmentally safe solvent systems such as water. Preparative methods involving assembly of different saccharides such as mono-, di-, tri-, and low molecular weight polysaccharides are also desirable and may lead to new polysaccharides having novel compositions and properties. The oxime-linked polysaccharides and their methods of preparation described herein can help fulfill these and other needs.

Benefits:

- Improved polysaccharides containing at least one oxime linkage

Applications:

- Life Science
- Biology
- Zoology

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